



## Changes to the 2011 TCNA Handbook for Ceramic, Glass and Stone Tile Installation (formerly known as the Handbook for Ceramic Tile Installation)

The title of the *Handbook* has been changed to reflect the newly-added methods and recommendations for installing glass tile and natural stone tile. Previously, the *Handbook* did contain some general information and cautions for installing glass tile, such as acceptable and unacceptable substrates and the need for high quality bonding mortars. However, the *Handbook* did not call out specific installation methods as acceptable, with the recommendation instead being to consult the glass tile manufacturer for an appropriate method. Likewise, while many methods in the *Handbook* were used for the installation of stone tile and were referenced by the Marble Institute of America (MIA), those methods were not specific to stone and did not provide stone-specific criteria.

But, over the past year, the TCNA glass tile manufacturers' subcommittee, with input from contractor representatives of the National Tile Contractors Association (NTCA), identified which methods are suitable for installing glass successfully, and what additional design and

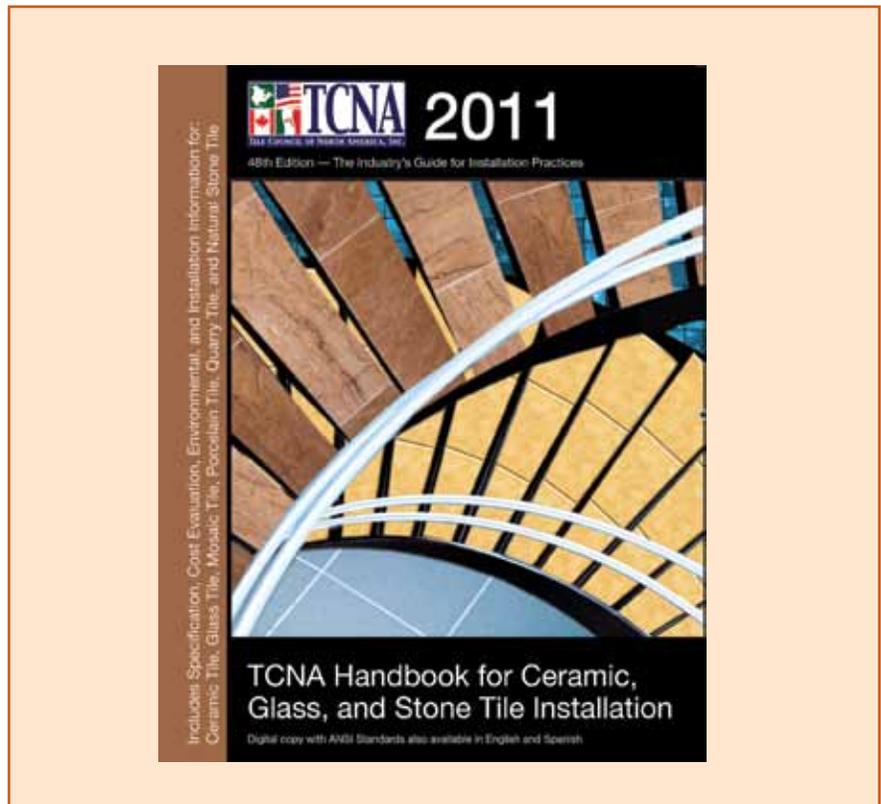
installation considerations need to be factored in when glass tile is selected. TCNA also worked with the MIA and NTCA to determine the same relative to installing stone tile. The resulting recommendations were then considered, tweaked, and ultimately approved by the Handbook Committee

of industry experts. The result? Vast improvements to the *2011 Handbook* with regard to guidelines for installing glass and stone tile.

### What are the new Handbook guidelines for installing glass tile?

Glass tile will now be listed as an option in 70 *Handbook* installation methods. Within those methods, some added precautions are also listed:

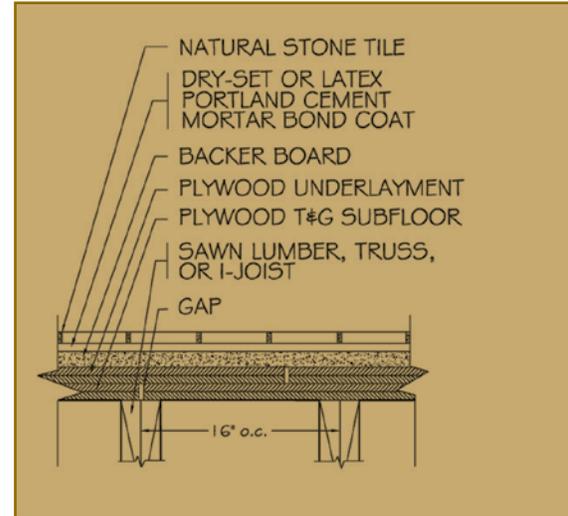
- Emphasis on the need for movement accommodation
- Recommendation to use white mortar for translucent glass
- Consideration of the floor service rating and how glass tile may affect it
- Requirement to consult glass tile manufacturer for allowable membranes and membrane placement.



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Plus, the new *Handbook* includes a *Glass Tile Selection and Installation Guide*, which provides definitions and aesthetic expectations for glass tiles. For example, the guide explains, “many cast glass tile surfaces are wavy and slightly textured with inherent folds,

bubbles and creases” and “fused glass tile surfaces can be smooth, textured, uniform or non-uniform.” This glass guide also provides expanded substrate recommendations, such as the need for substrates to be “sufficiently flat to allow uniform coverage and avoid excessive thin-set build-up” to avoid



**For stone floor installations, two layers of plywood are required if backer board will be used.**

cracks in the glass, and expanded recommendations for mortars and adhesives: “Some low temperature coated glass tiles are not intended for installation with cementitious materials. Cement mortar alkalinity may deteriorate those low temperature applied backings and increase the risk of delamination, particularly in wet or humid environments.” Also, “due to the imperviousness of glass tile, setting materials may take longer to cure, particularly when also installed over an impervious substrate.”

The glass guide also provides installation requirements, some of them heretofore lesser-known, even among seasoned installers:

- “With translucent glass tiles, setting material color and full coverage are essential; white is commonly recommended. Avoid using setting materials from different production batches and check for bag-to-bag color consistency.”
- “For hollow-shaped pieces (v-cap, quarter round, crown caps, etc.), back-butter the tile but do not fill the cavity. Excess setting material

can shrink and may cause cracking or ghosting.”

### What are the new Handbook guidelines for installing stone tile?

Instead of incorporating stone information into existing methods, as was done for glass, separate stand-alone methods were created for installing natural stone tile, also called dimension stone. This approach was taken to provide the *Handbook* user clear insight into the difference between selecting engineered products like glass and ceramic tile, which can be manufactured to meet specified performance criteria, and harvested products, like stone, which cannot.

Consider the example above regarding service ratings for floor installations. Natural stone tiles range widely in performance. Some stones, for example many limestones, are softer than typical ceramic tiles and would be expected to break and show abrasion more easily.

But other stones would perform as well as ceramic on a floor. The one

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generalization that can be made is that it is wise to research a stone’s performance

in consideration of the intended use.

Because of the variability of natural stone, the *2011 Handbook* requires stone tile to be installed using an unbonded (floating) mortar bed for installations larger than 100 square feet where the substrate is post-tensioned concrete. The stone guide explains: “because dynamic movements of post-tensioned slabs have proven problematic for directly-adhered natural stone, Method F111 is the only method of installation over post-tensioned slabs, on-ground or above-ground.” By contrast, ceramic tile can be bonded directly to post-tensioned concrete provided that a more deformable mortar is used to accommodate the inherently increased amount of movement in such slabs as compared to traditional-style reinforced concrete.

Where the substrate is wood framing and subflooring, again a mortar bed method of installation is preferred for stone. Backer board is only provided as an option over wood subflooring if two layers of structural

plywood subflooring are installed and joists are spaced no more than 16" on center. This is because of "the discontinuity of the system at seams between the subfloor panels," which can result in cracked stone. The second layer of plywood reduces cracking by reducing differential deflection of adjacent framing members. The unbonded mortar bed method simply accommodates the differential deflection by providing a separation of the installation from the subfloor.

### Are there any other Handbook changes?

Absolutely. In addition to the glass and stone guidelines, much more was done to improve the utility of the *2011 Handbook* and its user-friendliness; the 2011 edition will be about 300 pages! Stay tuned for parts II and III of this series of articles for information on the other important changes and additions such as: environmental classification and weight per square foot assigned to each

*Handbook* method, wet area guidelines, ISO mortar and grout identification and

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explanation, and ceramic tile selection, just to name a few. **TILE**



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### About the Author

Stephanie Samulski is an instructor at the Ceramic Tile Education Foundation (CTEF) and a project manager for the Tile Council of North America (TCNA). She entered the tile trade in 1999 as an apprentice with the Bricklayers and Allied Craftworkers (BAC) Local 32 in Detroit, and she went on to install tile as an independent contractor. Ms. Samulski received her BA in Journalism from Wayne State University.